

REMARKS

This Amendment is in response to the Office Action dated June 27, 2006. Claims 1-14 are pending. Claims 1-14 are rejected. Claims 1, 7, 12 and 13 have been amended to clarify the present invention. Claim 2 has been cancelled. Accordingly, claims 1 and 3-14 remain pending in the present application.

For the reasons set forth more fully below, Applicant respectfully submits that the present claims are allowable. Consequently, reconsideration, allowance and passage to issue of the present application are respectfully requested.

Present Invention

A dual port USB interface is disclosed. The dual port interface comprises a USB host port and a USB peripheral port. The host port and the peripheral port are defined using predetermined signals. In a preferred embodiment the dual port USB interface is utilized in a network where at least one dual port USB (DPUSB) connector is connected to either standard USB connectors or other DPUSB connectors. By use of the DPUSB interface, a single device in a network can act as both a host or a peripheral to other devices as well as create network peer-to-peer relationships. Use of DPUSB connectors also provides the opportunity of new types of devices such as memory cards and cables that will greatly increase the ease of use of many intelligent electronic devices such as cameras and PDAs.

Claims 1, 7 and 12 are reproduced in their entirety herein below.

1. (Currently amended) A single computer USB interface comprising:
a USB root hub host port; and
a USB peripheral port wherein the USB peripheral port and the USB root hub host port are both active at the same time, wherein the USB root hub host port and the USB peripheral port are defined using predetermined signals.

7. (Currently amended) A USB network comprising:
a first device; the first device including a single computer USB interface, the interface including a USB root hub host port of the first host computer; and a USB peripheral port, wherein the USB root hub host port and the USB peripheral port are defined using predetermined signals; and
predetermined signals, wherein the USB peripheral port and the USB root hub host port are both active at the same time.
12. (Currently amended) A device comprising:
a processor; and
a single computer USB interface, the interface comprising a USB root hub host port; and a USB peripheral port, wherein the USB root hub host port and the USB peripheral port are defined using predetermined signals and wherein the USB peripheral port and the USB root hub host port are both active at the same time.

Claim Rejections – 35 USC 102

The Examiner states,

2. Claims 1, 3-5, 12, and 13 are rejected under 13 U.S.C. 102(b) as being anticipated by Vaillancourt (U.S. Patent No. 5,557,778).

3. Referring to apparatus claims 1 and 12, Vaillancourt teaches a device comprising:
a processor (see item 510 in figure 7); and
a single I/O interface to a first computer of a first star network coupled to the processor (see item 430 in figure 4 and figure 5B), comprising a host port of the first host computer (see item 432 in figure 4); and a peripheral port to a second host computer of a second star network (see item 443 in figure 4) wherein the host port and the peripheral port are defined using predetermined signals and wherein the peripheral port and the host port are both active at the same time (see lines 39-43 of column 4 and paragraph bridging columns 4 and 5).

4. Referring to claim 3, Vaillancourt teaches the two connected devices utilizing the single I/O interface can have a peer-to-peer connection via the host port and the peripheral port (see lines 39-57 of column 4, “dual-hub configuration”).

5. Referring to claim 4, Vaillancourt teaches two connected devices using a single I/O interface can have a one-to-many relationship via either the host port and/or the peripheral port (see lines 39-57 of column 4, “single-hub configuration”).

6. Referring to claims 5 and 13, Vaillancourt teaches a device needs only one physical I/O port via the connector that includes a host port and a peripheral port which are defined using the predetermined signals (see figure 4, note there is one port per device).

Claim Rejections – 35 USC 103

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vaillancourt in view of Brief et al. (U.S. Patent No. 6,122,676 hereinafter “Brief”).

9. Referring to claim 2, Vaillancourt teaches the star networks, however Vaillancourt fails to teach the ports are USB ports and the star networks are USB networks.

Brief teaches, in an analogous system, a USB network implemented as a star network wherein the ports are USB ports.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system and method of Vaillancourt with the above teachings of Brief. One of ordinary skill in the art would have been motivated to make such modification in order to take advantage of the high data transfer rates between hosts and peripherals that the USB standard provides.

10. Claims 6-11, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaillancourt in view of Hanson et al. (U.S. Patent No. 6,460,094 hereinafter "Hanson").

11. Referring to claims 6 and 14, Vaillancourt fails to teach the predetermined signals comprise host differential data lines and peripheral differential data lines.

Hanson teaches, in an analogous system, the above limitations (see lines 52-65 of column 4).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the apparatus and system of Vaillancourt with the above teachings of Hanson.

One of ordinary skill in the art would have been motivated to make such modification quickly determine whether connected device is a high speed device as suggested by Hanson (see lines 3-16 of column 2).

12. Referring to claim 7, Vaillancourt teaches a network comprising:
a first device (Host A); the first device including a single I/O interface to a host computer of a first star network (see item 430 in figure 4), the interface including a host port of the first computer (see item 432 in figure 4) and a peripheral port to a second host computer of a second star network (see item 443 in figure 4), wherein the host port and the peripheral port are defined using predetermined signals (see lines 39-43 of column 4 and paragraph bridging columns 4 and 5); and

a second device for communicating with the first device (see any of items 434-439), the second device using the predetermined signals, wherein the peripheral port and the host port are both active at the same time (see lines 39-43 of column 4 and paragraph bridging columns 4 and 5).

Vaillancourt fails to teach the network being a USB network.

Hanson teaches a system wherein a USB bus is used to connect a wide variety of peripherals and allows for high transmission rates (see lines 24-37 of column 1).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Vaillancourt with the above teachings of Hanson to benefit the high transmission rate USB provides.

13. According to claims 8 and 9, Hanson teaches the host a peripheral ports are USB ports and the predetermined signals are within the USB standard (see lines 47 of column 4 to line 2 of column 5).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Vaillancourt with the above teachings of Hanson for the same reasons as mentioned above.

14. Referring to claim 10, Vaillancourt teaches the first and second devices can be any of a camera, computer, PDA, laptop device, handheld device, printer, and cellular phone (see lines 10-16 of column 1).

15. Referring to claim 11, Vaillancourt fails to teach the predetermined signals comprise host differential data lines and peripheral differential data lines.

Hanson teaches, in an analogous system, the above limitations (see lines 52-65 of column

4).

It will have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the apparatus and system of Vaillancourt with the above teachings of Hanson. One of ordinary skill in the art would have been motivated to make such modification quickly determine whether connected device is a high speed device as suggested by Hanson (see lines 3-16 of column 2).

Response to Arguments

Applicant respectfully traverses with the above-identified rejections. Applicant will describe with particularity the differences between the cited references and the claimed invention herein below.

The Vaillancourt Patent (5,557,778) describes a star network in which the star network host ports are transceiver connections to a computer. In Vaillancourt, these transceiver connections may be transformed using suitable electronics to star network device ports or multiplexed into multiple host port transceiver connections.

This is not acceptable in standard USB ports. Physical USB Network connections are either host ports or device ports. There is a variant USB port called a USB OTG port which includes a special switching signal that allows the network signals of the OTG port to be either a host port or a device port but not both at the same time.

Stated in other terms, the Vaillancourt patent concern a generic star network hub in which the upstream port is a host port that after passing thru the invention claimed by Vaillancourt can become host, device, or transceiver ports. Vaillancourt thus require at a minimum that the host ports are transformable into either host, device, or transceiver ports.

However, the claims in the present patent application concern only two types of ports, namely host and device ports that

(a) cannot be transformed; i.e., the ports are ready to be connected physically as either host or device ports.

(b) and in network terminology these ports are root hub ports; that is, connect directly to their associated network computer and not thru another hub connection to their associated network computer as is the case in the present patent application.

The Examiner states in his rejection on page 2, #3, that item 510 in Figure 7 of the Vaillancourt is a processor. This is incorrect. Item 510 is a host computer controller card and shows that Vaillancourt is describing a generic hub connection and not a root hub connection as well as negates the claim of the examiner of a one-to-one correspondence between the claims of Vaillancourt and the present patent application.

The Examiner states that the DPUSB interface is an interface that “one of ordinary skill in the art” would or could easily infer from the current state of the art. However, USB has been a standard for over ten years and in this time, no vender has purported to sell a hardwired dual ported USB interface as described in the present patent application. In fact, for standard Windows PC’s, single device port controller cards are not commercially available with only one vender even postulating that a device Port may be added to a standard PC (see PLX Technology “USB Duet Technology”). These facts confirm the assertion of the applicant that the technology of the present patent application, which combines both a USB host and a USB device port in one I/O interface, is not obvious to one of ordinary skill in the art.

Summary

DPUSB ports will provide standard computers with many USB networking possibilities including hardware peer-to-peer connections. Applicant respectfully submits therefore that claims 1, 7 and 12 are allowable over the cited reference. Furthermore, claims 3-6, 8-11, 13 and 14 are allowable since they depend from allowable base claims.

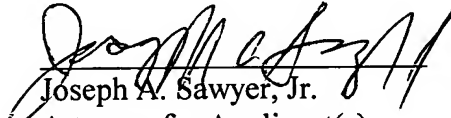
Conclusion

In view of the foregoing, it is submitted that the claims 1, and 3-14 are allowable over the cited references and are in condition for allowance. Applicant respectfully requests reconsideration of the rejections and objections to the claims, as now presented.

Applicants' attorney believes this application in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicants' attorney at the telephone number indicated below.

Respectfully submitted,
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